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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,117	03/25/2004	Sei Kato	16UL02206	6643

7590 05/15/2007

Patrick W. Rasche
Armstrong Teasdale LLP
Suite 2600
One Metropolitan Square
St. Louis, MO 63102

EXAMINER	
KHOLDEBARIN, IMAN K	

ART UNIT	PAPER NUMBER
3737	

MAIL DATE	DELIVERY MODE
05/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

NT

Office Action Summary	Application No.	Applicant(s)	
	10/809,117	KATO, SEI	
	Examiner	Art Unit	
	I Kenneth Kholdebarin	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/25/2004 and 08/23/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 2, 6-8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hossack et al. (US 2002/0120195).

Re Claim 1: Hossack discloses a method and apparatus for medical diagnostic ultrasound imaging comprising of a unit to store the image data (setting conditions), reference and real time images, taken [0042] and further display the reference image and real-time images, (See [0002] and [0100]).

Re Claim 2: Hossack teaches that the correlation coefficient between the images taken will be calculated and further displayed. (See paragraph [0168] and [0176]).

Re Claim 6-8: Hossack discloses the method and a system comprising a display for displaying the images taken (reference and real-time) and storing units for storing the measurement result

for a target region under examination; Hossack further discloses that the storing data (reference image and the scan condition regarding the reference) could be access from a remote computer, (See paragraph [0042]).

Re Claim 9: Hossack discloses an ultrasound diagnostic system comprising an ultrasound probe; transducer; image producing device; a computer with storage device and device for reading the scan condition to perform the correlation coefficient calculation; and finally an ultrasound image display device, (See paragraph [0023] and [0042]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 3-5, 10-12, 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hossack et al. (2002/0120195).

Re Claim 3 and 13: Although Hossack fails to specifically points out the system and method to display the maximum value of the correlation coefficient from the beginning of acquisition of the

real-time imaging, but Hossack teaches if the signal de-correlates by more than certain level (i.e., maximum cross-correlation level is below a threshold, e.g., 0.7) then that would be an indication that the transducer has been moved too fast and the system displays a warning to the user, (See Paragraph [0100]).

Therefore it would have been obvious to Hossack that the maximum value of correlation coefficient was known and been used as part of the method disclosed on Hossack at the time of the invention was made.

Re Claim 4, 5 and 14: Hossack teaches the method and a system of ultrasound imaging comprising a correlation coefficient calculator between the two images (reference and real-time) (See paragraph [0170]).

Hossack does not teach this method to be used for outside of region of interest.

However, it would have been obvious to one ordinary skill in the art at the time of the invention was made to use the correlation coefficient device in order to calculate the cross correlation outside and within the region under examination.

Re Claim 10 and 12: Although Hossack fails to specifically points out a display for correlation coefficient, Hossack teaches a correlation coefficient calculator and further teaches displaying the results.

Therefore in view of Hossack it would have been obvious to one ordinary skill in the art at the time of the invention was made to have a display for displaying the result of correlation coefficient in order to have a better understanding between the real-time and reference image.

Re Claim 11: Hossack teaches all the elements of claim 11 except a scan plane angular scanning device. However Hossack teaches the motion of the probe also affects the determination of rotation, and estimates of rotation should also be modified. Typically, the angular estimate is derived from the angle associated with the relative motion of pixels in the azimuthal direction at the top and bottom of the search block. This angle must now be corrected to take account of the fact that the X dimensions of the pixels are different from that originally assumed. The correlation coefficient is defined in geometry as viewes of the cosine of the angle between the two vectors of samples drawn from the two random variables, (See paragraph [0181]). Therefore in view of Hossack at the time of the invention was made it would have been obvious to one ordinary skill in the art to have an angular scanning device in order to overcome the issue of different angle on the real-time image with respect to the reference image.

Re Claim 15: Hossack teaches that the correlation coefficient between the images taken will be calculated and further displayed. (See paragraph [0168] and [0176]).

Re Claim 16: Hossack teaches that the ultrasound diagnostic apparatus comprising of a display is capable of partially overlapping frames of the images taken. Hossack further discloses that this combination could be performed in many ways, (See paragraph [0118]).

Re Claim 17 and 18: Hossack discloses the method and a system comprising a display for displaying the images taken (reference and real-time) and storing units for storing the measurement result for a target region under examination; Hossack further discloses that the storing data (reference image and the scan condition regarding the reference) could be access from a remote computer, (See paragraph [0042]).

Re Claim 19: Hossack teaches the data of the images (reference and real-time) could be accessed from a remote computer. Hossack does not teach the image data to be stored on the directly on the network. However it is obvious to one ordinary skill in the art at the time of the invention was made to use that reference computer as a hub / router of the network system in order for the other entire computers/client to have access to the reference information.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record and not relied upon is considered pertinent to applicants disclosure. Konofagou discloses system and method for electromechanical wave imaging of body structures; Radulescu discloses Method and apparatus for elasticity imaging; Salcudean

discloses Method for imaging the mechanical properties of tissue; Shiina discloses Ultrasonic diagnosis system and strain distribution display method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I Kenneth Kholdebarin whose telephone number is 571-270-1347. The examiner can normally be reached on M-F 8 AM- 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Iman Kenneth Kholdebarin
IKK
05/09/2007

BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700